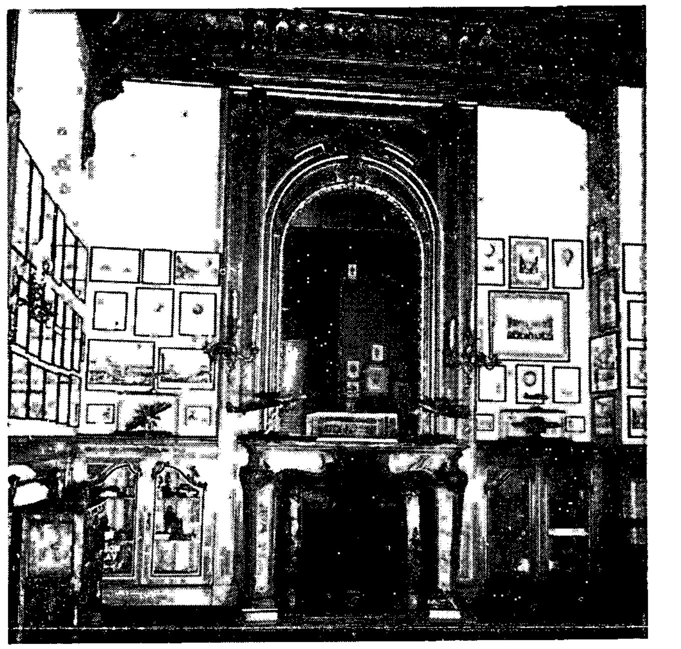
The Aeronautical Collections of the Institute

Few are aware of the widespread use that has been made of aeronautical motifs in art from the earliest days of air navigation. The Montgolfiers had scarcely demonstrated the practicability of the hot air balloon before French craftsmen began using the balloon theme in the decoration of china, jewelry, and furniture. Fabrics for dresses and draperies early showed the influence of the new science. Even clocks of the early nineteenth century were decorated with pictures of famous balloons.

The Institute is fortunate in having among its collections excellent examples of these art forms. The Landauer material includes early French, German, English, and American miniatures, porcelains, fans, powder boxes, and jewelry, all with aeronautical themes. The Burden-Tissandier Collections, now on loan to the Institute, contain many fine examples of late eighteenth century inlaid furniture illustrating some of the early flights of the great French balloonists. Some of the china and enamelware of this collection rank with the finest in the world.

Another important element of the I.A.S. Museum is the Harry F. Guggenheim print collection. It comprises many of the finest examples of eighteenth and nineteenth century English, French, and Italian prints, etchings, and engravings, all on aeronautical themes. Among the major artists represented are Cruishank, Rowlandson, and Daumier. In addition to accurate renditions of the famous early balloon ascensions which are of interest to the aeronautical historian, the collection includes a number of humorous items, cartoons, and satirical drawings that point up some of the political and social problems of the day.



A corner of the museum showing a part of the Guggenheim print collection

Another gold mine (and no pun is intended here) for the researcher in the aeronautical past is to be found in the Institute's extensive collection of medals. Almost every event of importance, from the first Montgolfier flight to the rescue of marooned aviators from the Greenland Ice Cap, has been commemorated by a medal of some sort. One aviation magazine recently published a short history of aviation based solely on photographs of some of the medals in the Institute's collections. This may well be a fertile field for the cultivation of Historical Associate Members.

The Institute's Model Room now contains over 400 aircraft models. These range from the beautifully accurate models made from drawings and sketches of pre-Wright machines made by Paul Guillow and his associates, down to the sleek and sharklike X-1, Skystreak and Skyrocket. Notable are the beautifully detailed models of early Farmans and Bleriots, and the extensive collection of World War I machines donated to the Institute from the estate of Peter Brooks. Many of these models have been incorporated in the "First Century of Flight" exhibit described in this issue. As time permits, they will be worked into a completely chronological display of aeronautical history which is planned for permanent exhibit at the Institute.

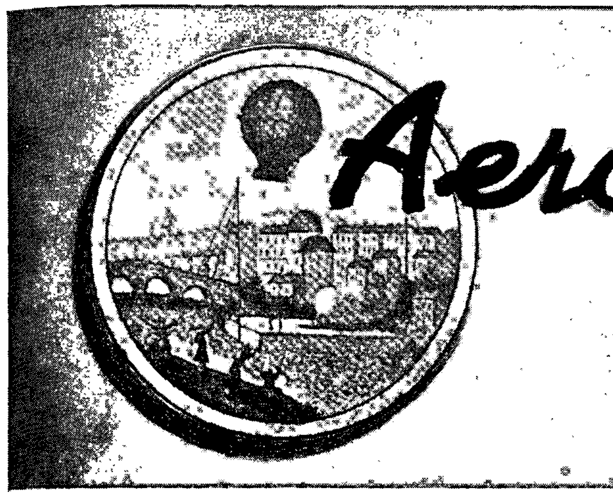
The above is but a brief description of some of the material that is already on hand. Through the interest of the Historical Associates of the Institute it is hoped that these basic collections will be expanded to embrace every significant type of aircraft in the history of the development of the aeronautical sciences.

The Collector's Box

In this space we are planning to run an information service for collectors of aeronautica. If you are seeking some particular item and will let us know about it, we will try to find some clues for you, either through our available research material or through correspondence with other members. Should you want source reference concerning any item in your own collection, we shall be glad to assist as far as we are able. Send in your questions, your problems, or your suggestions to us, and we will do our best to be of service to you.

This space will also be available to members who wish to exchange duplicate items with other members. If you will send in a brief description of such items we will try to put you in touch with someone who may have something to "swap."

Address all inquiries to AERONAUTICA, 2 East 64th St., New York 21, N.Y.



Aeronautica

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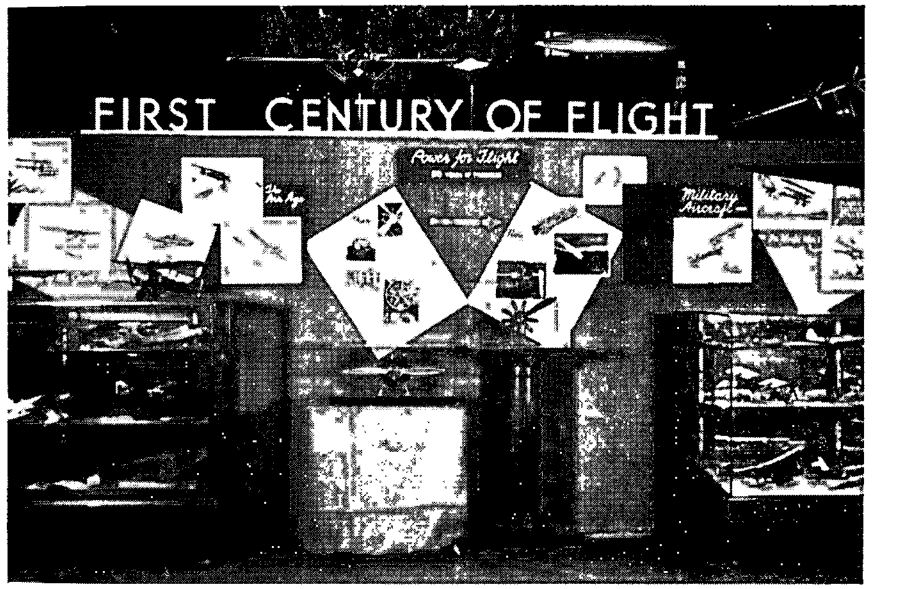


A corner of the temporary First Century of Flight exhibit prepared for the 1949 I.A.S. meeting

"New Look" for I.A.S. Museum

Success of Experimental "First Century of Flight" Exhibit Points Way to Modernizing Display of Institute's Aeronautical Collection

THE UNIFORMLY FAVORABLE REACTION of the many visitors who inspected the Institute's special mid-winter aeronautical exhibit (see "First Century of Flight," AERONAUTICA, Vol. 1, No. 1, p. 3) has touched off a complete restudy of our entire collection with an eye toward more useful display of items of major interest. The temporary exhibit has been dismantled, and work is well along on a full-scale rearrangement of our model room and on a special gallery for the display of aeronautical prints, lithographs, maps, cartoons, etc. The emphasis for both projects is on dynamic rather than static treatment.

To increase their knowledge of modern display techniques, the Director and the Curator have made a study of methods employed in a number of modern museums, including the Franklin Institute of Philadelphia, and the Museum of Modern Art, the American Museum of Natural History, the N.Y. Historical Society, and the Museum of Science and Industry, all of New York, and the Carnegie Museum of Pittsburgh. The display experts at these institutions have been most generous with their advice and assistance.

The Institute has one of the potentially finest model aircraft collections in existence, but it has suffered from overcrowding and obviously "hit or miss" arrangement. The first difficulty is being eliminated by a complete relocation of display cases and by the elimination of duplicates and items of little value or importance to our purpose. The unfortunate heterogeneity of the original arrangement is being corrected by a thorough restudy of the chro-

(Continued on page 8)

Re "Aeronautica"

This is the second issue of the Institute's quarterly publication for Historical Associate Members. It contains not only news of Archives activities but also two articles of interest to collectors and historians. Signed, original articles of similar nature are solicited. Unfortunately, however, the state of the budget does not permit any remuneration for such work.

Your comments and criticisms of AERONAUTICA are invited. They should be mailed directly to Miss Claudine Lutz, Curator, 2 East 64th St., New York 21, N.Y.

"Pie in the Sky"

Eighteenth Century Peddlers of Political Propaganda Were Quick to Exploit the New Science of Aerostation to Promote Personal Panaceas or to Confound Political Adversaries.

by

Claudine Lutz

SCARCELY had the Montgolfiers and Professor Charles demonstrated that the Ocean of Air was navigable by lighter-than-air craft, than the caricaturists and political cartoonists of the day seized upon the idea as a new medium for political jibes. In the Institute's collections of hundreds of eighteenth and nineteenth century prints will be found many fine examples. Some of them are crude, some are vulgar, but they all demonstrate how quickly aerostation was picked up and exploited in the public mind.

It would be impossible to reproduce here any but a small fraction of the total number of such prints that are available for study in the Landauer and Guggenheim collections. We illustrate only a few to indicate the range of coverage.

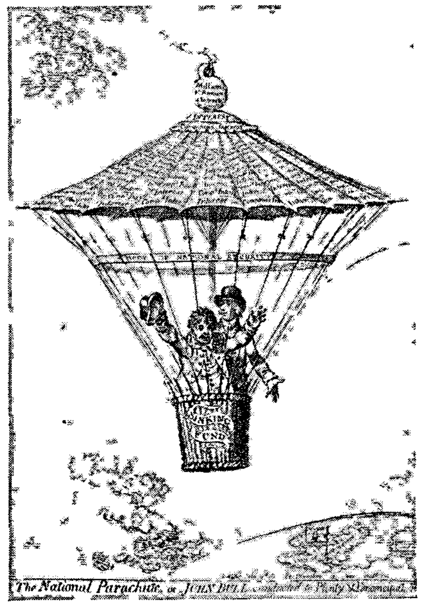
One of the earliest illustrations of political cartooning using the ballon theme is dated April 29, 1784. The cartoon, designed by Rowlandson and printed by Humphreys, alludes in a somewhat raucous manner to the interference of the Duchess of Devonshire in the Richmond Elections. Agitation for a better representation in Parliament was at its peak then, and the opulent Duchess was active in opposition to Pitt's attempts at reform. Clearly, the "meddlesome jade" (as the Duchess is referred to in another cartoon of the period) was not any too successful.

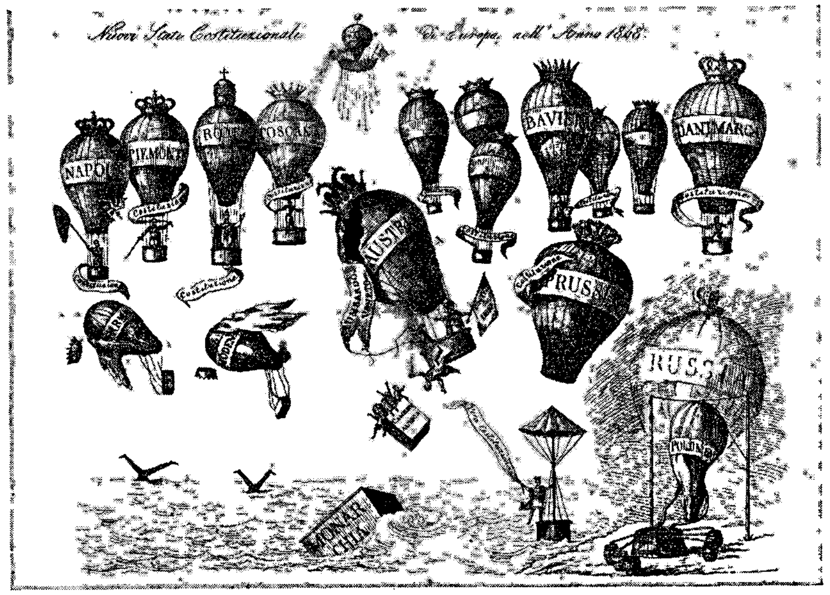
From the onset of the reign of George III, a popular movement was afoot to limit the power of the king. A climax was reached when the French Revolution broke out and raised liberal hopes all over the world. The abuses of the Terror and the fear of anarchy, however, soon forced English leaders to a showdown with the people. When the war began between France and England (1793) all the revived liberal Whig clubs (such as the "Constitutional Society" and the "Revolutionary Society") were dissolved and their officers prosecuted for treason. One of our cartoons illustrated here shows how soon popular sympathy turned back to the side of the government. It emphasizes the new attitude of retrogression from liberal idealogy and reform so violently advocated by the Whigs. The Phrygian bonnet carried by one of the Hydra's heads is an amusing detail of revealing symbolism, the bonnet being at the time the badge of the feared "Sans-culottes" of France. The Thundering Sun (obviously the King of England) is taking, so to speak, a new lease on political life.

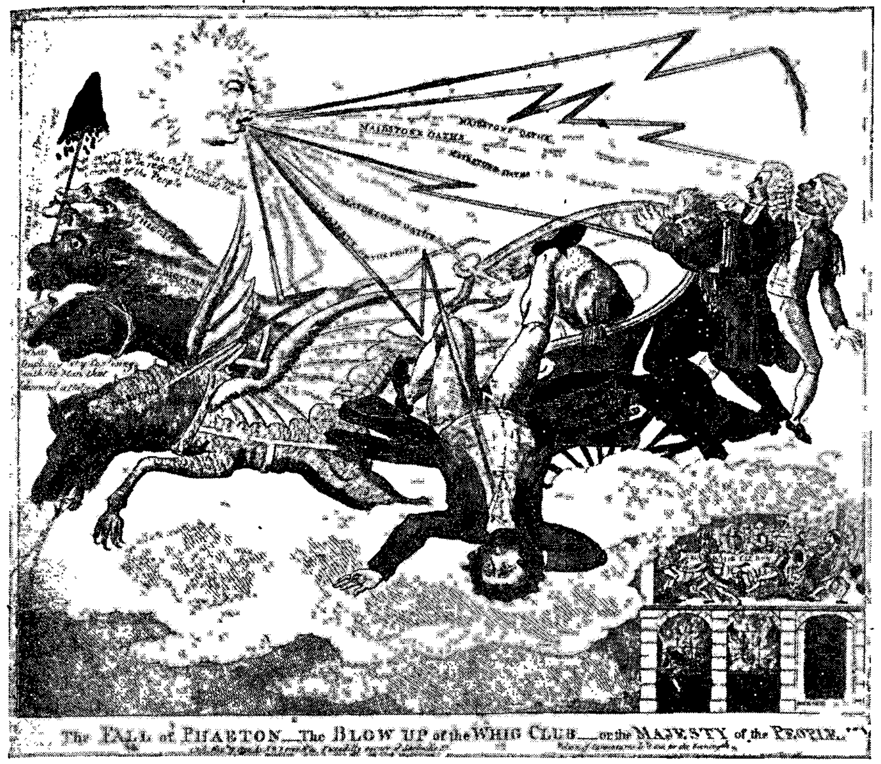
A definitely derisive attitude toward the government, however, can be seen in a later caricature (dated 1802) in the Humphreys series. The popular dissatisfaction with a burdensome national debt and the heavy taxes is cleverly referred to in a caricature of Pitt and Cobbett riding a sinking financial parachute toward Britain, the "land of freedom and emancipation."

(Right) John Bull's National Parachute.

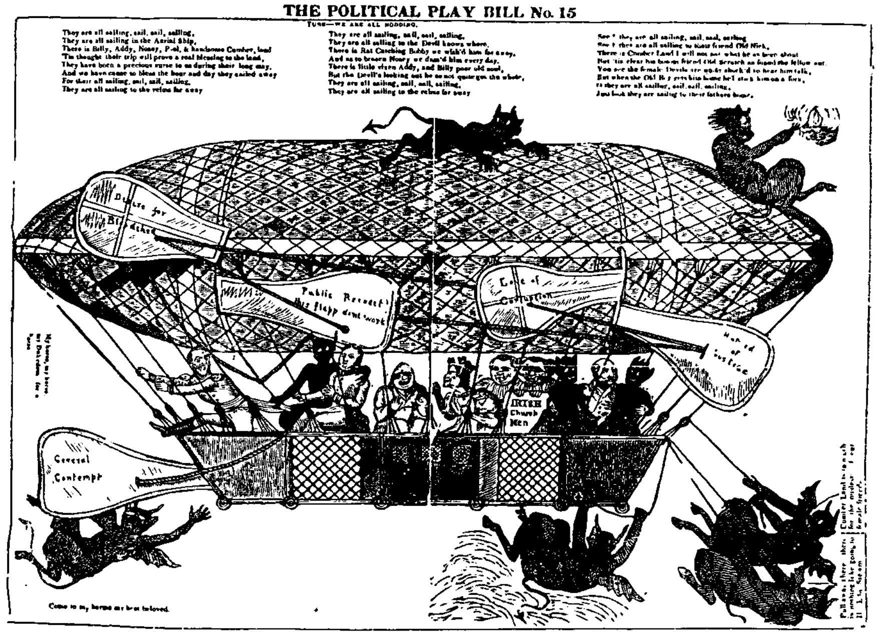
(Below) 1848 Aerial Conception of Constitutional States.


The National Parachute, or JOHN BULL conducted to Plenty & Emancipation.




The FALL of PHAETON__The BLOW UP of the WHIG CLUB__or the MAJESTY of the PEOPLE.

THE POLITICAL PLAY BILL No. 15


Tune—We are all nodding.
They are all sailing, sail, sail, sailing,
They are all sailing in the Aerial Ship,
There is Billy, Addy, Nosey, P-el, & handsome Cumber, land
'Tis thought their trip will prove a real blessing to the land,
They have been a precious curse to us during their long stay,
And we have cause to bless the hour and day they sailed away
For their all sailing, sail, sail, sailing,
They are all sailing to the relms far away
They are all sailing, sail, sail, sailing,
They are all sailing to the Devil knows where,
There is Rat Catching Bobby we wish'd him far away,
And as to brazen Nosey we dam'd him every day,
There is little vixen Addy, and Billy poor old soul,
They are all sailing, sail, sail, sailing,
They are all sailing to the relms far away
See! they are all sailing, sail, sail, sailing
See! they are all sailing to their friend Old Nick,
Just look they are sailing to their fathers home.
Public Resentment
General Contempt
Come to my home my best beloved.
First Voyage of the Aerial Ship Sailing to H---L by Steam.

MADAM BLUBBER'S LAST SHIFT

(Top, left) "The Fall of Phaeton—The blow up of the Whig Club or the Majesty of the People."

(Center) "First Voyage of the Aerial Ship sailing to H – – L by Steam."

(Top, right) "The Great Balloon, or Whig Aerostation."

(Left) "Madam Blubber's Last shift, or the Aerostatic Dilly."

Through this whole period one of the bitterest controversies centered about the Irish Catholic Emancipation. After numerous and bloody rebellions, the ministry was finally pushed (1829) into granting Roman Catholics equal civil rights. The leader of the Catholic movement was the great orator and jurist O'Connell. He was assisted in his fight by the old Whig Party and the new Radical Party. Disapproval of the government attitude, as well as of the Anglican majority, was expressed eloquently in the accompanying cartoon out of Lloyd's series of political pamphlets.

The reign of William IV found also its aeronautically bent lampoonists. One excellent example of the most pleasantly virulent attacks is illustrated. This cartoon shows the unhappy Earl of Lennox's Eagle swiftly whisking the king and his ministers to the Netherworld in the company of a number of jeering devils. Popular disapproval of the government was at its height. The Reform Bill had just been passed after much opposition from the king and his entourage. The bitterness of this and other cartoons of the times indicates how close England came to civil war in those days.

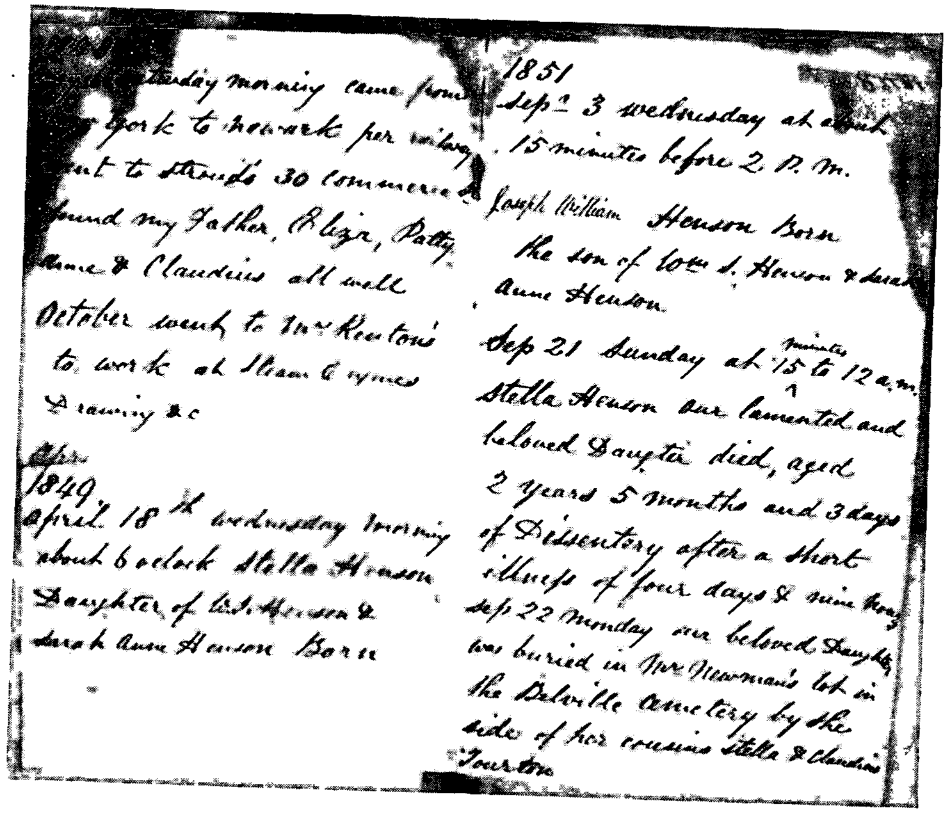
Although most of the examples cited here are from England, the same aeronautical theme was used for similar purposes in other countries. Space is not available in this issue to treat them in detail, but we intend to do so in the

(Continued on page 8)

William Samuel Henson*

by S. Paul Johnston

Long a shadowy figure in aeronautical history, the full story of Stringfellow collaborator of 1843 has finally come to light. This article,† reprinted by special permission, was based on the Henson papers now in the possession of the I.A.S. Archives.



day morning came from
york to newark per railway
nt to strouds 30 commerce
found my Father, Eliza, Patty
Anne & Claudius all well
October went to Mr Renton's
to work at Steam Engines
Drawing &c

Apr
1849
april 18th wednesday morning
about 6 oclock Stella Henson
Daughter of W. S. Henson &
Sarah Ann Henson Born

1851
Sepr 3 wednesday at about
15 minutes before 2 P. M.
Joseph William Henson Born
the son of Wm S. Henson & Sarah
Ann Henson

Sep 21 Sunday at 15 minutes to 12 a.m.
Stella Henson our lamented and
beloved Daughter died, aged
2 years 5 months and 3 days
of Dissentery after a short
illness of four days & nine hours
Sep 22 Monday our beloved Daughter
was buried in Mr Newman's lot in
the Belville Cemetery by the
side of her cousins Stella & Claudius
Tourtine

Facsimile of two pages of Henson's diary which establish for the first time the date of his birth and the facts of his emigration to America.

On Friday, the twenty-third of March, Eighteen Hundred and Eighty-Eight, readers of the Newark (N.J.) *Daily Advertiser* noted with satisfaction that "slightly warmer, fair weather" was in prospect. The politically inclined viewed with alarm or chuckled with glee over a report that a bolt of lightning had struck the Senate wing of the Nation's Capitol ("balls of fire" had frightened the august occupants, had knocked down a bored cab horse tethered outside). Sportsters in barroom and barber shop argued loudly a dispatch that the "Men of Washington" had neatly trounced the New York Giants to the tune of 6 to 5 (Crane pitched for New York, O'Day for Washington).

But a historic moment had passed without headlines. Little noted, it was mentioned only in the obituary column of the day:

> **HENSON**—On the 22nd inst. William Samuel Henson, in the 76th year of his age. Funeral tomorrow, notice of which will be found in tomorrow's paper.

Again, a seemingly unimportant event went unremarked. No funeral notice made the paper the next day. By the twenty-fourth of March the name was almost as completely buried as the man.

Thus passed in obscurity, many miles and many years removed from the scenes of his short-lived fame, a man who, following in the footsteps of Sir George Cayley, dreamed dreams of heavier-than-air flight and its commercial implications almost a hundred years before science and technology made such things possible.

It was once said of the aeronautically inclined that "a man doesn't have to be crazy to be in aviation—but it helps." Certainly Henson's patenting his Ariel Steam Carriage in England in 1842 and the subsequent public promotion of a company to establish an air line from London to the "Plains of Hindustan" caused a great deal of eyebrow lifting among the neo-Victorians. Of course his ideas were impractical at the time. He had no knowledge of structural strength requirements. His notion of the power needed for flight was completely unrelated to fact. But full credit must go to Henson for an imagination that then conceived a form of aircraft describable in the same terms that apply to a modern monoplane. More than that, he suggested an application for the apparatus that approximated the specification of a modern air line. His patent application was far more than a mere flying machine. It dealt with "Certain Improvements in Locomotive Apparatus and Machinery for conveying Letters, Goods and Passengers from Place to Place through the Air." Unfortunately, his thinking far outreached the capability of his times to grasp.

As was to have been expected, the scribes and the printers had a field day. Fanciful stories, such as the famous Glasgow Hoax (in which a certain Professor Goells of Glasgow described as fact a hair-raising adventure involving the explosion of a Henson Ariel while in full flight over the River Clyde), political diatribes, cartoons, and bits of doggerel dotted the British press.

> "It matters not, I understand, whichever way the wind is
> They'll waft you in a day or so, right bang into the Indies!
>
> "Or you may dine in London now, and then, if you're romantic,
> Just call a ship and take a trip right over the Atlantic."

French and German magazines picked up the story but, on the whole, treated it more seriously than did the home papers. In America, the *New World* magazine (New York) printed a long and seriously philosophical discussion of the idea on Saturday, May 13, 1843.

That phase of Henson's work which rocketed into public notice in 1842 and sputtered out in obscurity when he broke with his partner, Stringfellow, in 1848, has been so well described that little of that part of the story will be repeated here. It is rather with Henson the man that we have to deal, especially those portions of his career that have hitherto been little known. Only lately, with the discovery of many documents and family records that have never been published, has it been possible to evaluate properly Henson's place in history. Because so little was known of him and because the career of Stringfellow was more completely documented by his contemporaries and by his son, F. J. Stringfellow, it is not too astonishing that Stringfellow alone was accorded the credit for the first flight of a power-driven model in 1848. As the figure of Henson emerges from its shadowy background, it is becoming more and more apparent that he should be given equal credit with his collaborator for the first step in the final development of heavier-than-air flight, even though he was not present to witness the final triumph.

So far, aeronautical historians have been either inept in research or downright lazy. The true facts of Henson's career have not been buried too deeply, yet everyone who has written about him has accepted without question the statements of one or two classic writers. Malcom Ross, in an article on Henson published in *Aero Digest*, July, 1930, provided the clue to the Lipsham family connection, but neither he nor any subsequent writer to date made any use of the information. J. E. Hodgson, in his *History of Aeronautics in Great Britain* (1924) gives considerable space to Henson's work between 1842 and 1848 but excuses himself of comment outside that period by—"the writer has endeavored in vain to obtain information as to Henson's early or later life." He continued the myth that—"Success, however, still seemed unattainable, and Henson, discouraged and impoverished, finally gave up the project, crossed to America a year or two later, and 'disappeared in the wilds of Texas from the ken of aeronautical science.' "

Davey, in his book *Henson and Stringfellow—Their Work in Aeronautics* (1931), hit a little closer to the truth. He had little to say about Henson's antecedents and his work prior to 1842 except that he "was probably born at Leicester around 1805, but nothing of his early life is known." He states that Henson married in 1848, emigrated to America in 1849, settled somewhere in the vicinity of Philadelphia, and died on March 22, 1888, in Newark, N.J. For that he gets only a passing grade. The place and date of death and year of marriage are accurate, but the rest has served only to add to the general confusion. He missed the time and place of birth by 7 years and some 20 miles. Henson recorded in his diary that he was born in Nottingham on May 3, 1812, and was married to Sarah Ann Jones on March 4, 1848. As will be shown presently, the acceptance of the 1805 birth date has introduced serious errors into certain assumptions that have been made regarding his career.

The relationship between Henson and Stringfellow before and during the years of their active collaboration has never been entirely clear. So little has been known of Henson's early life, and the reason for the breaking up of the partnership so obscure, that historians have arrived at their conclusions from extremely slender data. Since Henson's chronology has now been established, it is possible to draw a more accurate picture of their association.

John Stringfellow was born in 1800 and moved to Chard in Somersetshire in 1820. It has been stated that his collaboration with Henson began when they met in Chard on his arrival. This now appears to be somewhat of an absurdity, because Henson was only 8 years old at that time. Furthermore, it seems likely that the latter was then living with his family in Worcester and did not reach Chard until the early 1830's. Stringfellow, by then, had a well-established business in Chard. Both being mechanically inclined, it is not unnatural that the two men, the one in his early thirties and the other in his early twenties, should have been drawn together. The town was small enough to have made it inevitable. Its population in 1831 was 5,141; in 1931, only 4,053.

It is not impossible that Stringfellow knew the Henson family long before he moved to Chard. About 1812–1815 he was in Nottingham, apprenticed in the lace trade. At that time William Henson, Sr., was burgess of that town. He was not only a prominent lace manufacturer but was recognized as an "inventive genius," having made a name for himself in the improvement of lace making and knitting machinery.

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*Recently, many data concerning Henson's life have been uncovered. Clippings, letters, and diaries long buried in cellar and attic have been made available through the courtesy of Henson's granddaughter, Miss Winifred Lipsham, and her father, George W. Lipsham, of Orange, N.J. E. T. Henson, a grandson, also contributed to a new fund of Hensonia.

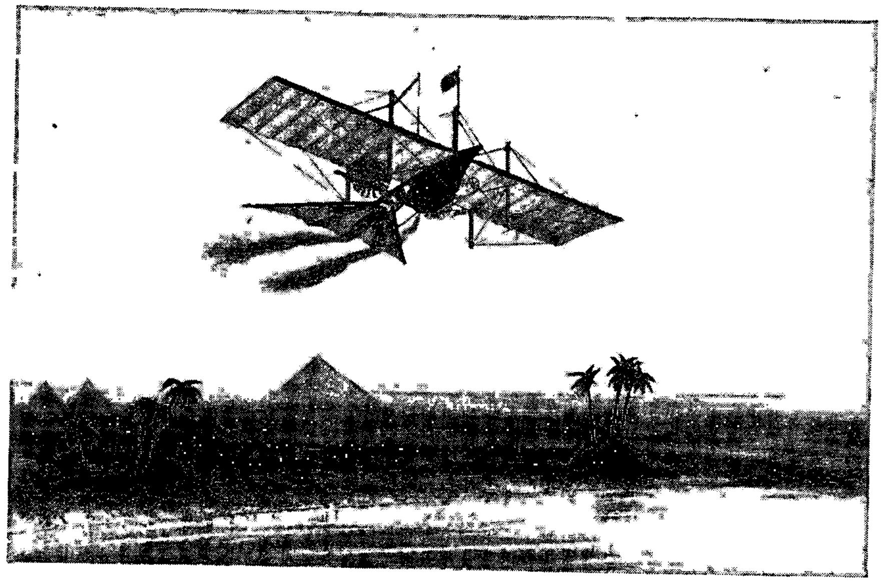
† Reprinted from the *Technology Review*, June, 1943, edited at the Massachussetts Institute of Technology.

It might even be that young Stringfellow had been apprenticed to him. In any case, it is not unlikely that when the Henson family turned up in Chard in the 1830's Stringfellow came into contact with them again.

The exact date of the Hensons' arrival at Chard is unknown, but a letter exists addressed to "W. S. Henson, Lace Manufacturer, Chard" dated 10 July, 1835. On October 1, 1835, the British patent office issued to "Wm. S. Henson, machinist" at Chard, County of Somerset, letters patent for certain improvements in machinery for the manufacture of bobbin-net lace. Certainly, both men were in Chard in 1835, and the chances are that their association began about that time.

It is a reasonable supposition that the complete idea for Henson's patent of 1842 did not spring full-blown overnight. Both the Ariel Steam Carriage and the engine are so carefully detailed in the patent specification and drawings that it is fair to assume they are the end-product of several years of thought and experimentation. Davey makes the statement that Henson was known to be experimenting with "gliding models, tentative construction devices, and a light steam engine in Chard in 1840." He must have been working and thinking about such things for several years before 1840, pondering the flight of birds, reading Cayley's articles in *Nicholson's Journal* and discussing his germinating ideas for mechanical flight with his friend Stringfellow.

Latterly, three hitherto unknown letters from Stringfellow to Henson have turned up. They were written between April and July of 1845. (At that time Henson was living in London; Stringfellow, in Chard.) They discuss many of the details of the construction of the models and the engines that were then under way and also disclose certain of the business arrangements between the partners. Regardless of their content, their tone is significant. They are not the letters of a master disclosing his ideas to a pupil. In spite of the age difference between the two, they are rather those of an assistant toward his superior. Ideas are advanced with figurative question marks, and Henson's advice on this or that point is sought. They indicate certainly that Henson was the leader both in technical and commercial matters.



Print of the model of the Henson Ariel in the I.A.S. Museum.

On the business side, one point of interest comes out. When Henson and Stringfellow made their joint partnership agreement in December, 1843 (after the failure of the Aerial Transit Company), history records that they bought out the shares of their erstwhile partners, Marriott and Columbine. In a letter of July 25, 1845, however, Stringfellow writes to Henson: "I received two notes from Marriott.. in the one received this morning there was a proposition which I give you under and to which I believe Columbine is agreeable, that is to divide the patent interests into 12—as follows Henson 4/12 Columbine 4/12 Mariott 2/12 Stringfellow 2/12—this Marriott thinks equitable and just I refrain from giving you my opinion on the subject as I should wish your opinions on it candidly and unbiased. He also purposed a meeting same as you mentioned in your letter and wishes my answer per return of post but of course I shall give him no answer till I hear from you."

Heretofore it has been believed that the Henson-Marriott-Stringfellow-Columbine syndicate was terminated with the failure of the Company late in 1843. Actually, 2 years later, the group was still arguing over the distribution of the assets. Moreover, the letter gives some clue to the relative importance of the contributions of the four partners. Apparently, Columbine's work as a promoter put him on an equal footing with the inventor, whereas Marriott the lobbyist and Stringfellow the technical assistant had to be content with only half as much each. All evidence indicates that the basic ideas for both the aeroplane and the engine were Henson's. Stringfellow's contributions (at least until the end of the 1840's) now appear to have been largely those of a constructor working under the general direction of the inventor.

It seems probable that Henson played a much larger part in the design and construction of the successful power-driven model airplane than history has accorded him. It is clear from the letters that two models were under construction as early as 1845. Stringfellow wrote in July that year: "I am not waiting for the silk as I have done nothing to the second pair of propellers for the large machine and am sorry to say I have been otherwise employed for the last week that is in repairing a Disaster. Last Monday week in the morning I found the trap fallen on the floor one of the cords having broken in two at a point where there appeared to be a little iron mould. Like all other bad jobs it might have been worse. I dont find any damage done to the frame work of the Machine only the Boiler broken from its bearing and the dome and steam gauge bulged a good deal. I had the frame and propellers of the small machine underneath it at the time which was literally smashed to pieces and I have now been spending my time for more than a week on it. I have succeeded in making it full as strong if not quite so light and neat."

Brearey stated in *Popular Science Review* in 1869 that its (the successful Stringfellow flying model of 1848) construction was begun in 1846, some 2 years before Henson's "disappearance." The records of the unsuccessful experimenting on Bala Down of 1846 and 1847 indicate that the *larger* model was used throughout. The final modification of the *smaller* model and its power plant must have been carried out during the latter part of 1847 and the spring of 1848.

According to F. J. Stringfellow ("A Few Remarks on what has been done with Screw-Propelled Aero-Plane Machines from 1809 to 1892"—Chard, 1892), the first successful flights of the smaller model took place in June or July of 1848, or within 3 or 4 months of the time of Henson's departure from England. Stringfellow probably worked out the launching method (clearly his own idea, and which undoubtedly contributed an essential element to the successful flight) during the spring of 1848, but in view of the length of time that it took in those days to develop and test engines, boilers, propellers, etc., it is reasonably certain that Henson had a considerable hand in the actual construction and testing of the smaller model that finally flew.

The histories state that he gave up in 1848, implying that he slunk off the stage to vanish in America. Why?—when success was so close at hand? There were doubtless other reasons aside from discouragement over the problems of mechanical flight. In almost 10 years of aerial experimentation he had probably let his lace-making business go completely to pot. How he managed to keep going that long is still a mystery—although his father undoubtedly had a hand in it. Now he was contemplating marriage, and certainly there seemed little financial return from the abortive experiments on Bala Down. It is known that his father was living in America at the time and had probably urged his son to come out and to take advantage of the opportunities of the New World. Further, there are hints in the family records of a violent quarrel with Stringfellow. When it occurred and over what issue are still unknown, but Henson's opinion of Stringfellow in his later years made such an impression upon several of his children and grandchildren that two generations later it is clearly remembered that the name "Stringfellow" was forbidden in the Henson household and that William Samuel took frequent occasion to denounce his former partner as one who had robbed him of his ideas and who had taken credit for them.

For whatever the reason, Henson did break off his work as has been recorded, married, and emigrated to America where he subsequently lived for 40 years. Heretofore, no one has been exactly certain as to the date of Henson's departure for America, but his diary states: "Friday, March 31st (1848)—Sailed at about 10 or 11 o'clock from London Dock in the Ship Mediator..."

He landed in New York on Friday, May 5, 1848, went directly to Newark where his father was already established, and settled down to the business of raising a family and earning his living. On the whole, he was more successful at the former than the latter. He and Sarah had seven children, five of whom survived early childhood—one of whom is still alive. He became a citizen of the United States on November 8, 1853.

The directories of the City of Newark carry continuous record of his residence there, beginning with the issue of 1850 down to the year of his death, 1888. The names of his widow and some of his sons and daughters appear in the directories as late as 1907.) During that period he classed himself variously as "engraver," "mechanical draftsman," "artist," and "civil engineer." During the 1850's he worked for a time for the Newark Machine Company, and for 1 year listed himself as the "William S. Henson & Co., Machinists and Engineers, Union Building, Corner of Mulberry and River." Evidently this venture was short-lived. The following year, he appears simply as "Draftsman, Newark Machine Company."

From 1867 on he lists no business connection. He considered himself a consulting engineer, an enterprise that was not always profitable. There were times when his family were said to have been in somewhat straightened circumstances. At one time, probably from the spring of 1864 to late in 1866, he lived in Lima, Peru. Why he was there or what he was doing are not accurately known. Letters and other family records indicate that he had some connection with an engineering project, probably connected with the construction of a bridge or in some sort of mining venture. In January of 1869, a U.S. patent covering a centrifugal screw pump was issued jointly to Henson and to a J. H. White of Lima, Peru.

There is little evidence that Henson's interest in aeronautics extended beyond the first few years of his residence here. Among his papers has been found a pamphlet by Solomon Andrews, dated July 22, 1848, proposing an Association of Inventors of Aerial Devices. Andrews was then experimenting with odd-shaped balloons at Perth Amboy, N.J. Whether or not the two were ever in communication is not known.

Both Stringfellow and Marriott are known to have been in America after Henson's arrival here. The former came for a short visit with his son in 1849. Marriott left England and settled in San Francisco, also in 1849. He became a banker and newspaper owner and later (1869) patented a flying machine of his own. He died in 1884. There is nothing to indicate, however, that Henson was ever in touch with his former colleagues. It is even possible that he remained ignorant of the model flight of 1848. It was never publicized until the appearance of the F. J. Stringfellow pamphlet of 1892.

There are several footnotes and penciled comments in a copy of John Wise's *System of Aeronautics Comprehending its Earliest Investigations and Modern Practice and Art*, published in 1850 and presented to Henson by his friend and fellow inventor, Joseph Yates, probably in 1855 or 1856. Wise, on page 87, in discussing Henson's Ariel, says that, "...it was seriously contemplated to build one after his model, with which to cross the Atlantic." Somewhat indignantly, Henson appends—"This was mere newspaper talk, I never thought of anything so absurd. I knew that the steam Engine had to be remodelled to make steam navigation practicable and I still farther remodelled steam Boilers and produced the lightest engine ever built which on a small scale was still insufficient; the Engine only developed 1/4 the power of the steam altho it was operated with a cut off."

On another page, Henson made certain corrections in the stated dimensions of the full-scale Aerial Steam Carriage and adds the following information regarding the engine: that it was "twenty H.P. consisting of two Cylinder 7-in. diam. 14 in. stroke. The pair of Engines and Boiler were actually built. by Houchin of the City Road London. Richard Houchin was recommended by John Farey C.E. an eminent London Engineer and authority in Engineering. It was never tested." This is the only indication that construction work on the full-scale project was actually started before the Transit Company's collapse.

Although Henson spent at least 10 years on the subject, he was not essentially *aeronautically minded.* Considering the state of the art in the middle nineteenth century, there is no reason to expect that he would be. He did not have the scientific curiosity nor the educational background of a George Cayley. He was primarily a mechanic—an inventor—and his interests were completely catholic. All his life he was continually thinking up new ideas in mechanics and in machinery. To him no mechanism was perfect. Each new device that he saw apparently challenged him to improve upon it. He would work intensively on something for a time, then drop it—a new razor, an aeroplane, a breech-loading cannon, a method for waterproofing fabrics, an ice machine, a springboard, or a device for cleaning cisterns. Toward the end of his life he became intensively interested in the mechanics of the Universe. He observed, he read, he speculated, and he wrote on astronomical matters.

His only known published work is a treatise on astronomy, privately printed in Newark in the spring of 1871. It is short, only 28 pages, but its scope can be gaged from the title: *The Great Facts of Modern Astronomy with an Exposition of What They Teach Comprising the Formation of the Planets and Their Satellites, Solution of the Law of Distances, Theory of Light and the Sun Spots.* Evidently, Henson was not one to cramp his imaginings by limiting his subject.

Henson called himself an engineer—"civil," "mechanical," or "consulting"—as his situation seemed to warrant.

Although he certainly lacked a degree, he cannot be criticized for so styling himself. The engineers of the middle 1850's were practical men as well as theorists. They could do things with their hands. Thus, Henson qualifies. By all the standards of the times, he was entitled to write the word "engineer" after his name.

He came by his talents honestly. For at least two generations before him his people had been mechanically inclined. His grandfather Thomas, "the strongest man in Nottinghamshire," was a cabinetmaker and wheelwright. Born in the town of Bunny, he married Anne Piccard and settled in Ruddington where his son William was born on August 22, 1786. Young William probably had little formal education but was apprenticed at an early age to a "framework knitter" in Nottingham (probably about 1798). He married Martha Charge in 1807. His progress was rapid, for by 1812 (the year William Samuel was born) he was elected a burgess of Nottingham and was already talked of as an "inventive genius." He had survived the Luddite riots of 1811–1812 with some distinction. About 1820 he and his growing family moved to Worchester, where he became a manufacturer of lace, leaving a trail of patents for devices to improve the machinery and processes of manufacture. His first wife died sometime in the early 1830's and shortly thereafter he married again and moved to Chard. Between 1845 and 1848 he moved to America and settled in Newark, where William Samuel joined him in 1848. According to the *Nottingham Guardian* of November 5, 1879, he contrived a considerable improvement in carpet machinery "of which he was thoroughly robbed by the Yankees...and sorely wounded by the gross rascality with which he was treated in America, he left that country..." Subsequently, he lived to a ripe old age, inventing things almost to the day of his death, October 17, 1879. He is buried in Nottingham.

Of William Samuel Henson as a person, only the sketchiest accounts remain.

Family tradition has it that, as an old man, he was inclined to be dictatorial and of strong opinions, especially where politics was concerned. Like many inventors, he was a poor business man. He had ideas—others profited by them. When he had a little money, it would dribble through his fingers, and he would think up something new to try to recoup his losses.

Henson was certainly not one of the great men of history. He made little lasting contribution to science or to engineering. Unlike Watt, or Stephenson, or Fulton, his name is not associated with the beginning of a new era. He was one who let his imagination roam in regions that could not be explored and exploited until the more solid workers—the plodders, if you will—had contrived the tools to cut the steps on which to climb. Such wills-o-the-wisp of science serve a useful purpose. They dart hither and yon, enticing others to venture after them. Some of their followers stumble into pitfalls and vanish. Others find solid footing and win to some lasting achievement.

"New Look" for I.A.S. Museum

(*Continued from page 1*)

nology of aircraft development. It will presently be possible for students of aeronautical history to trace step-by-step progress toward modern flight by making one complete circuit of the model room.

The central reception room on the second floor of the 64th Street building has been transformed into a modern exhibition gallery. Well-lighted wall panels and strategically placed glass cases make possible the setting-up of varying displays from the large stock of aeronautica. There is more material of this sort in the Landauer, Burden, and Guggenheim collections than can possibly be shown advantageously at any one time. By selecting themes on topics of special interest and by drawing on available supply for outstanding examples, an almost unlimited series of special displays can be put together for temporary exhibit purposes.

The first print exhibit will be of a general nature, built around the best examples of eighteenth and nineteenth century aeronautical arts. Plans call for the completion of this exhibit and for the renovation of the Model Room by mid-May this year, in time for inspection by the delegates of the Royal Aeronautical Society of Great Britain who are meeting with the I.A.S. during the weeks of May 22 and 29.

"Pie in the Sky"

(*Continued from page 3*)

future. One little cartoon of a definite international flavor caught our eye. A small Italian drypoint dated 1848 expounds caustically the advantages of constitutional states versus absolute monarchy. All European countries are represented as Balloons in various stages of stability. Riding highest is France, then in the July 1848th Republic with a basketful of legislators stabilized by numerous grappling hooks. A few misguided states are rapidly losing altitude. The monarchy of Austria has just burst asunder. The Italian origin of the print would explain the violent treatment of Austria; Italy and Austria were then warring over the possessions of Venice and Lombardy.

Political cartooning is but one aspect of the aeronautical theme used with spirit and art by illustrators and engravers since the birth pangs of aviation. Many variations turn up in all art media. I.A.S. collections contain representative samples of many of them. We plan to make them available to our members for more comprehensive study.

The Collector's Box

This space will be available to members who wish to exchange duplicate items with other members. If you will send in a brief description of such items we will try to put you in touch with someone who may have something to "swap."

Address all inquiries to Aeronautica, 2 East 64th St., New York 21, N.Y.

AERONAUTICA for disposal: Balloon clock, Antique Powder Boxes with balloon miniatures, fans, prints, engravings, balloon posters, handbills, etc. R. Schoendorf, 7832—81st St., Glendale 27, L.I., N.Y.

Aeronautica

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I.A.S. Museum Reopens

Delegates of the R.Ae.S. Preview Newly Decorated Museum at Reception May 23.

Reorganization of the I.A.S. Museum was completed by mid-May. The British Delegates of the Royal Aeronautical Society were treated to a preview of the second floor at a Reception and Buffet Supper given by the members of the Council of the Institute on Monday, May 23.

Both the Print Room and the Model Room elicited many favorable comments from our guests and the Council members. The pale gray wall panels and gray-framed cases, enlivened by touches of coral and deep blue, were noted with pleasure. In the Model Room the new chronological pattern of exhibition also drew approval for its more rational approach to the history of the evolution of mechanical flight.

Our aim is, presently, to arrange educational tours of the Museum's collections for various high schools and other young people's groups. In this connection we are working jointly with the Industrial Museum of Jersey City, which is featuring "Aviation" in its annual summer museum display. We also have contributed some models and posters to a show on Transportation in the Children's Room of the Public Library in New York.

We urge our Historical Associate Members who live near the I.A.S. headquarters to come and visit the Museum since we are anxious to have their comments and criticisms on this particular phase of our activities.

The Museum, situated at 2 East 64th St., will be opened from 9:00 a.m. to 5:00 p.m. every day except Saturday, Sundays, and holidays through the summer.

Re "Aeronautica"

This is the third issue of the Institute's quarterly publication for Historical Associate Members. It contains news of the latest Archives activities and another article on early aeronautical events. A series of such articles by the same, and other, authors is to be published at intervals in the bulletin.

Signed, original articles of similar nature are urgently solicited. Unfortunately, however, the state of the budget does not permit any remuneration for such work.

Your comments and criticisms of Aeronautica are invited. They should be mailed directly to Miss Claudine Lutz, Curator, 2 East 64th St., New York 21, N.Y.